

Abstract

Galinaceae hybrid breeding includes selecting pure homozygous barred (B) and gold (b) heterosomal lines, playing roles in transmission of feather color to resulting hybrid chicks. Crossing homozygous recessive (bb) red Rhode Island males with homozygous dominant (BB) Marans females results in an F1 generation of two equal-proportion phenotypes, one for each sex. Feather color is genetically determined by activity of gold and barred genes in the heterozygous (Bb) male and (bB) female genotypes, sex being determined by sex gene SDW in chromosome W and by recessive sex gene sdw in chromosome Z. Heterozygous genotype SDWsdw determines female sex, while recessive homozygous genotype sdwsdw determines male sex. Non-allelic interaction of the barred gene dominant sex gene overlaps the allelic interaction between the barred and gold genes, the latter becoming non-functional, and the heterozygous females showing a different genotype from heterozygous males, allowing day-old chick sex screening according to feather color.